UNITED STATES PATENT AND TRADEMARK OFFICE

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/587,094	07/20/2006	Eric Q. Li	42P21656	9494

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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE *3* MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.
- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
  Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *20 July 2006*.

2a)☐ This action is **FINAL**.   2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-24* is/are pending in the application.

    4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-24* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☒ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *20 July 2006* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

    Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

    Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

    a)☒ All   b)☐ Some * c)☐ None of:

      1.☒ Certified copies of the priority documents have been received.

      2.☐ Certified copies of the priority documents have been received in Application No. _____.

      3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

    * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO/SB/08)
    Paper No(s)/Mail Date *7/20/06 & 'A'*.

4) ☐ Interview Summary (PTO-413)
    Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

Detailed Action

1.   Claims 1-24 are pending in this application.

Specification Objection

2.   Paragraph 0008 of the specification recites a machine readable medium may include '… electrical, optical acoustical or other forms of propagated signals (e.g., carrier waves, infrared signals, digital signals etc.).' Carrier waves, inferred signals or digital signals are non-statutory under 35 U.S.C. §101.

35 USC § 101

3.   35 U.S.C. 101 reads as follows:
      Whoever invents or discovers any new and useful process, machine, manufacture, or composition of matter, or any new and useful improvement thereof, may obtain a patent therefor, subject to the conditions and requirements of this title.

      Claims 1-24 are rejected under 35 U.S.C. 101 for nonstatutory subject matter. The computer system must set forth a practical application of that § 101 judicial exception to produce a real-world result. Benson, 409 U.S. at 71-72, 175 USPQ

at 676-77. The invention is ineligible because it has <u>not been</u>
<u>limited to a substantial practical application</u>. A algorithm
that determines a value for each feature in a group of features
provided by a training data; eliminates at least one feature
from the group by utilizing the value for each feature in the
group; updates the value for each feature in the group based on
a part of the training data that corresponds to the eliminated
feature has no practical application. The result has to be a
practical application.

In determining whether the claim is for a "practical
application," the focus is not on whether the steps taken to
achieve a particular result are useful, tangible and concrete,
but rather that the <u>final result</u> achieved by the claimed
invention is "useful, tangible and concrete." If the claim is
directed to a practical application of the § 101 judicial
exception producing a result tied to the physical world that
does not preempt the judicial exception, then the claim meets
the statutory requirement of 35 U.S.C. § 101.

The phrase application is not clear in its purpose or
scope. It is an algorithm with the domain being abstract. There
is no cited practical purpose within the claims or
specification. There is no purpose or function which uses the

algorithm. The application recites an invention which is abstract in nature.

The invention must be for a practical application and either:

1) specify transforming (physical thing) or

2) have the FINAL RESULT (not the steps) achieve or produce a useful (specific, substantial, AND credible),

concrete (substantially repeatable/ non-unpredictable), AND

tangible (real world/ non-abstract) result.

However, the portions of the opinions in State Street and AT&T relying solely on a "useful, concrete and tangible" result analysis *should no longer be relied on*. Ex parte Bilski, Appeal No. 2007-1130 (Fed. Cir. October 30, 2008.

The court has said that there's a two-pronged test to determine whether a software of business method process patent is valid: (1) it is tied to a particular machine or apparatus, or (2) it transforms a particular article into a different state or thing. In other words, pure software or business method patents that are neither tied to a specific machine nor change something into a different state are not patentable. Ex parte Bilski, Appeal No. 2007-1130 (Fed. Cir. October 30, 2008).

A claim that is so broad that it reads on both statutory and non-statutory subject matter, must be amended.

A claim that recites an algorithm is not statutory. There must be a result that is a practical application.

Claim Rejections – 35 USC §112

The following is a quotation of the second paragraph of 35

U.S.C. 112:

> The specification shall conclude with one or more claims
> particularly pointing out and distinctly claiming the
> subject matter which the applicant regards as his
> invention.

Claims 1-24 rejected under 35 U.S.C. 112, second paragraph,

as being indefinite for failing to particularly point out and

distinctly claim the subject matter which applicant regards as

the invention. Claims 1, 9 and 17 use the term 'utilizing' is

unclear as used in these claims. Claim 1 states by 'utilizing

the value for each feature in the group, this is used to

eliminating at least one feature from the group. It is unclear

how the value is to be 'utilized.'

These claims need to be amended or withdrawn from

consideration.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of
35 U.S.C. 102 that form the basis for the rejections under
this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 1-5, 7-21, 23, 24 are rejected under 35 U.S.C. 102(b) (hereinafter referred to as **Cristianini**) being anticipated by Cristianini, 'Support vector machines and other kernel based learning methods.'

Claim 1

Cristianini teaches determining a value for each feature in a group of features provided by a training data (**Cristianini**, p30; 'Training data' of applicant is equivalent to 'training points' of Cristianini. 'Determining the value for each feature' of applicant is accomplished by the 'decision rule' of Cristianini.); eliminating at least one feature from the group by utilizing the value for each feature in the group (**Cristianini**, p29; 'Eliminating at least one feature' of applicant is disclosed by 'detection of irrelevant features and their subsequent elimination' of Cristianini.); updating the value for each feature in the group based on a part of the training data that corresponds to the eliminated feature. (**Cristianini**, p29; 'Updating the value for each function' of

applicant is the result of 'dimensionality reduction' of

Cristianini.)

    Claim 2

    Cristianini teaches a plurality of training samples, each

of the training samples corresponding to the group of features.

(**Cristianini,** p30; 'Training samples' of applicant is equivalent

to 'training points' of Cristianini. It is inherent that

training points of Cristianini relates to at least one group.)

    Claim 3

    Cristianini teaches computing a kernel data based on the

training data (**Cristianini,** p30; 'Computing the kernel data' of

applicant is equivalent to transforming the data into a feature

space' of Cristianini.); computing the value for each feature of

the group based on the kernel data (**Cristianini,** p30; 'Computing

the value' of applicant is accomplished by the 'kernel function'

of Cristianini. Cristianini discloses that the kernel function

uses training points and the test points.); and storing the

kernel data in a buffer. (**Cristianini,** p125; 'Buffer' of

applicant is equivalent to 'memory space' of Cristianini.)

    Claim 4

Cristianini teaches computing a matrix as the kernel data, each component of the matrix comprising a dot product of two of training samples provided by the training data. (**Cristianini**, p168; 'Dot product' of applicant is equivalent to 'dot product' of Cristianini.)

Claim 5

Cristianini teaches retrieving a kernel data from a buffer (**Cristianini**, p125; 'Buffer' of applicant is equivalent to 'memory space' of Cristianini.); updating the kernel data based on the part of the training data that corresponds to the eliminated features (**Cristianini**, p29; 'Updating the kernel data' of applicant is the result of 'dimensionality reduction' of Cristianini.); and updating the value for each feature of the group based on the updated kernel data. (**Cristianini**, p29; 'Updating the value for each function' of applicant is the result of 'dimensionality reduction' of Cristianini.)

Claim 7

Cristianini teaches computing a ranking criterion for each feature of the group based on the value for the each feature (**Cristianini**, p18; 'Ranking criterion' of applicant is achieved by using the perceptron algorithm which can be used to rank the

data according to their information content of Cristianini.);
eliminating the at least one feature with the minimum ranking
criterion from the group (**Cristianini,** p29; 'Eliminating at
least one feature' of applicant is disclosed by 'detection of
irrelevant features and their subsequent elimination' of
Cristianini.); and recording the eliminated feature in a feature
ranking list. (**Cristianini,** 'Recording the eliminated feature in
a feature ranking list' of applicant is inherent in Cristianini,
due to if Cristianini can determine which of the features is
irrelevant, then it must be 'recorded' in some memory for
comparison purposes.)

     Claim 8

     Cristianini teaches repeating of eliminating the at least
one feature from the group and updating the value for each
feature of the group until a number of features in the group
reaches a predetermined value. (**Cristianini,** p45; 'Repeating' of
applicant is disclosed as 'recursion' of Cristianini. 'Until a
number of features in the group reaches a predetermined value'
of applicant is disclosed by using recursion 'until the full
length of n characters has been attained' of Cristianini.)

     Claim 9

Cristianini teaches a training logic to determine a value
for each feature in a group of features provided by a training
data (**Cristianini**, p30; 'Training data' of applicant is
equivalent to 'training points' of Cristianini. 'Determine a
value for each feature' of applicant is accomplished by the
'decision rule' of Cristianini.); and an eliminate logic to
eliminate at least one feature from the group by utilizing the
Value for each feature in the group (**Cristianini**, p29;
'Eliminating at least one feature' of applicant is disclosed by
'detection of irrelevant features and their subsequent
elimination' of Cristianini.); wherein the training logic
further updates the value for each feature in the group based on
a part of the training data that corresponds to the eliminated
feature. (**Cristianini**, p29; 'Updating the value for each
feature' of applicant is the result of 'dimensionality
reduction' of Cristianini.)

Claim 10

Cristianini teaches wherein the training data comprises a
plurality of training samples, each of the training samples
having the group of features. (**Cristianini**, p30; 'Training
samples' of applicant is equivalent to 'training points' of

Cristianini. It is inherent that training points of Cristianini
relates to at least one group.)

    Claim 11

    Cristianini teaches a decision logic to decide whether to
repeat the elimination of the at least one features from the
group and update of the value for each feature of the group
until a number of features in the group reaches a predetermined
value. (**Cristianini**, p45; 'Repeating' of applicant is disclosed
as 'recursion' of Cristianini. 'Until a number of features in
the group reaches a predetermined value' of applicant is
disclosed by using recursion 'until the full length of n
characters has been attained' of Cristianini.)

    Claim 12

    Cristianini teaches wherein the training logic further
comprises: a kernel data logic to compute a kernel data based
upon the training data (**Cristianini**, p30; 'Computing the kernel
data' of applicant is equivalent to transforming the data into a
feature space' of Cristianini.); a buffer to store a kernel data
(**Cristianini**, p125; 'Buffer' of applicant is equivalent to
'memory space' of Cristianini.); a value logic to compute the
value based on the kernel data. (**Cristianini**, p30; 'Computing

the value' of applicant is accomplished by the 'kernel function'

of Cristianini. Cristianini discloses that the kernel function

uses training points and the test points.)

Claim 13

Cristianini teaches wherein the kernel data logic further

updates the kernel data in the buffer based on the part of the

training data that corresponds to the eliminated features

(**Cristianini**, p29; 'Updating the kernel data' of applicant is

the result of 'dimensionality reduction' of Cristianini.), and

the value logic further updates the value based upon the updated

kernel data. (**Cristianini**, p29; 'Updating the value' of

applicant is the result of 'dimensionality reduction' of

Cristianini.)

Claim 14

Cristianini teaches wherein the kernel data logic further

subtracts a matrix from the kernel data, each component of the

matrix comprising a dot product of two of training samples

provided by the part of the training data. (**Cristianini**, p168;

'Dot product' of applicant is equivalent to 'dot product' of

Cristianini.)

Claim 15

Cristianini teaches wherein the eliminate logic further comprises a ranking criterion logic to compute a ranking criterion for each feature of the group based on the value for the each feature. (**Cristianini,** p18; 'Ranking criterion' of applicant is achieved by using the perceptron algorithm which can be used to rank the data according to their information content of Cristianini.)

Claim 16

Cristianini teaches wherein the eliminate logic further comprises a feature eliminate logic to eliminate the at least one feature having the minimum ranking criterion from the group. (**Cristianini,** p29; 'Feature eliminate logic' of applicant is disclosed by 'detection of irrelevant features and their subsequent elimination' of Cristianini.);

Claim 17

Cristianini teaches determining a value for each feature in a group of features provided by a training data (**Cristianini,** p30; 'Training data' of applicant is equivalent to 'training points' of Cristianini. 'Determine a value for each feature' of applicant is accomplished by the 'decision rule' of

Cristianini.); eliminating at least one feature from the group

by utilizing the value for each feature in the group

(**Cristianini**, p29; 'Eliminating at least one feature' of

applicant is disclosed by 'detection of irrelevant features and

their subsequent elimination' of Cristianini.); and updating the

value for each feature in the group based on a part of the

training data that corresponds to the eliminated feature.

(**Cristianini**, p29; 'Updating the value for each feature' of

applicant is the result of 'dimensionality reduction' of

Cristianini.)

    Claim 18

    Cristianini teaches wherein the training data further

comprises a plurality of training samples, each of the training

samples corresponding to the group of features. (**Cristianini**,

p30; 'Training samples' of applicant is equivalent to 'training

points' of Cristianini. It is inherent that training points of

Cristianini relates to at least one group.)

    Claim 19

    Cristianini teaches computing a kernel data based on the

training data (**Cristianini**, p30; 'Computing the kernel data' of

applicant is equivalent to transforming the data into a feature

space' of Cristianini.); computing the value for each feature of

the group based on the kernel data (**Cristianini**, p30; 'Computing

the value' of applicant is accomplished by the 'kernel function'

of Cristianini. Cristianini discloses that the kernel function

uses training points and the test points.); and storing the

kernel data in a buffer. (**Cristianini**, p125; 'Buffer' of

applicant is equivalent to 'memory space' of Cristianini.)

Claim 20

Cristianini teaches wherein the plurality of instructions

that result in the computing system computing the kernel data,

further result in the computing system computing a matrix as the

kernel data, each component of the matrix comprising a dot

product of two of training samples provided by the training

data. (**Cristianini**, p168; 'Dot product' of applicant is

equivalent to 'dot product' of Cristianini.)

Claim 21

Cristianini teaches retrieving a kernel data from a buffer

(**Cristianini**, p125; 'Buffer' of applicant is equivalent to

'memory space' of Cristianini.); updating the kernel data based

on the part of the training data that corresponds to the

eliminated feature (**Cristianini**, p29; 'Updating the kernel data'

of applicant is the result of 'dimensionality reduction' of

Cristianini.); and updating the value for each feature of the

group based on the updated kernel data. (**Cristianini**, p29;

'Updating the value for each feature' of applicant is the result

of 'dimensionality reduction' of Cristianini.)

    Claim 23

    Cristianini teaches computing a ranking criterion for each

feature of the group based on the value for the each feature

(**Cristianini**, p18; 'Ranking criterion' of applicant is achieved

by using the perceptron algorithm which can be used to rank the

data according to their information content of Cristianini.);

eliminating the at least feature with the minimum ranking

criterion from the group (**Cristianini**, p29; 'Eliminating at

least one feature' of applicant is disclosed by 'detection of

irrelevant features and their subsequent elimination' of

Cristianini.); and recording the eliminated feature in a feature

ranking list. (**Cristianini**, 'Recording the eliminated feature in

a feature ranking list' of applicant is inherent in Cristianini,

due to if Cristianini can determine which of the features is

irrelevant, then it must be 'recorded' in some memory for

comparison purposes.)

Claim 24

Cristianini teaches repeating of eliminating the at least feature from the group and updating the value for each feature of the group until a number of features in the group reaches a predetermined value. (**Cristianini,** p45; 'Repeating' of applicant is disclosed as 'recursion' of Cristianini. 'Until a number of features in the group reaches a predetermined value' of applicant is disclosed by using recursion 'until the full length of n characters has been attained' of Cristianini.)

Conclusion

4.   The prior art of record and not relied upon is considered pertinent to the applicant's disclosure.

   -'Kernel methods for pattern analysis': Shawe-Taylor

   -U. S. Patent Publication 20050131847: Waston

   -U. S. Patent Publication 20050170372: Afeyan

   -U. S. Patent Publication 20050165556: Barnhill

   -U. S. Patent Publication 20050071300: Bartlett

5.   Claims 1-24 are rejected.

Correspondence Information

6.   Any inquiry concerning this information or related to the
subject disclosure should be directed to the Examiner Peter
Coughlan, whose telephone number is (571) 272-5990. The
Examiner can be reached on Monday through Friday from 7:15 a.m.
to 3:45 p.m.

If attempts to reach the Examiner by telephone are
unsuccessful, the Examiner's supervisor David Vincent can be
reached at (571) 272-3080. Any response to this office action
should be mailed to:

   Commissioner of Patents and Trademarks,

   Washington, D. C. 20231;

Hand delivered to:

   Receptionist,

   Customer Service Window,

   Randolph Building,

   401 Dulany Street,

   Alexandria, Virginia 22313,

   (located on the first floor of the south side of the

Randolph Building);

or faxed to:

(571) 272-3150 (for formal communications intended for

entry.)

Information regarding the status of an application may be

obtained from the Patent Application Information Retrieval

(PAIR) system. Status information for unpublished applications

is available through Private PAIR only. For more information

about the PAIR system, see http://pair-direct.uspto.gov. Should

you have any questions on access to Private PAIR system, contact

the Electronic Business Center (EBC) at 866-217-9197 (toll

free).

/P. C./

Examiner, Art Unit 2129

Peter Coughlan

12/2/2003

/David R Vincent/

Supervisory Patent Examiner, Art Unit 2129